

# JUNCTION VARACTOR WITH HIGH Q FACTOR AND WIDE TUNING RANGE

## Abstract

A PN-junction varactor includes a first ion well of first conductivity type formed on a semiconductor substrate of second conductivity type. A first dummy gate is formed over the first ion well. A first gate dielectric layer is formed between the first dummy gate and the first ion well. A second dummy gate is formed over the first ion well at one side of the first dummy gate. A second gate dielectric layer is formed between the second dummy gate and the first ion well. A first heavily doped region of the second conductivity type is located in the first ion well between the first dummy gate and the second dummy gate. The first heavily doped region of the second conductivity type serving as an anode of the PN-junction varactor. Second heavily doped regions of the first conductivity type located in the first ion well at one side of the first dummy gate that is opposite to the first heavily doped region and at one side of the second dummy gate that is opposite to the first heavily doped region, the second heavily doped regions being electrically connected to each other and serving as a cathode of

the PN junction varactor.